MINNESOTA POLLUTION CONTROL AGENCY
St. Paul, Minnesota
and
UNITED STATES ENVIROMENTAL PROTECTION AGENCY
Region 5
Chicago, Illinois

Addendum to Waite Park Wells Fourth Five-Year Review Report Dated May 27, 2010

A Five-Year Review addendum is generally completed for remedies where the protectiveness determination was deferred until further information is obtained. When deferring the protectiveness determination in the Five-Year Review report, MPCA and EPA typically provide a timeframe for when they will obtain the information and make a protectiveness statement. This document summarizes the progress made since the Fourth Five-Year Review for the Waite Park Wells National Priorities List Site (Site) in Waite Park, Minnesota, and provides the protectiveness determinations that were deferred in the Fourth Five-Year Review for the Site, which was signed by Jeff Lewis, Manager of the Closed Landfill and Superfund Section of the Minnesota Pollution Control Agency (MPCA) on May 25, 2010 and by Richard Karl, Director, Superfund Division, EPA Region 5 on May 27, 2010.

The Site consists of three State Superfund Sites: Waite Park Wells; Electric Machinery; and Burlington Northern Car Shop. For purposes of EPA oversight, the Electric Machinery Site is tracked as OU 1 and the Burlington Northern Car Shop Site is tracked as OU 2. The municipal water supply wells of the City of Waite Park (the Waite Park Wells State Superfund Site) are located on the eastern-most end of OU 2 and have not received a separate OU designation by EPA. The overall location of the Site is shown on Figure 1 and the location of the State Superfund Sites is shown on Figure 2.

The protectiveness statements outlined in the Fourth Five-Year Review report for the Site are as follows:

> The groundwater remedy and the containment cell remedy for the Waite Park Wells and the Burlington Northern (OU 2) sites, respectively, are functioning as intended and are currently protective of human health and the environment in the short term. Long-term protectiveness requires maintenance of the remedy and compliance with the institutional controls (ICs). Compliance with ICs will be accomplished by ensuring effective ICs are in place and by planning for long-term stewardship which includes maintaining, monitoring and enforcing effective ICs as well as maintaining the Site remedy components. A plan for long-term stewardship of the Site is needed to assure effective ICs are maintained, monitored and enforced. Upon request of the MPCA, the responsible parties will submit IC Plans to plan for additional IC activities.
>
> A protectiveness determination of the remedy at Electric Machinery (OU 1) cannot be made at this time until further information is obtained. Further

information will be obtained by taking the following action: Complete a Tier 3 Vapor Intrusion Assessment including a building and air quality survey, and take remedial actions appropriate to the results.

The Site-wide protectiveness determination is deferred because further information needs to be obtained at Electric Machinery (OU 1), as described above. This information gathering and potential remedial action are anticipated to take two years, at which time a protectiveness determination will be made in an addendum to this report. In addition to the above RA as a component of long-term protectiveness, long-term protectiveness will be achieved at the Waite Park Wells NPL Site when: groundwater cleanup goals have been achieved; the Site contaminated soils are properly addressed; the remaining ICs are put in place; and IC Plans have been developed and their recommendations implemented.

This Five-Year Review Addendum provides the Electric Machinery (OU 1) and the site-wide protectiveness statements.

Progress Since the Fourth Five-Year Review Completion Date

OU 1

At the time of the Fourth Five-Year Review in 2010, MPCA and EPA could not determine whether vapor intrusion presented an unacceptable risk to workers at the former Electric Machinery building and therefore deferred the protectiveness determination for OU 1.

Since that time, MPCA has obtained additional information concerning air exchange operations in the building which exists on OU 1, occupied by Grede Foundries, Inc. This information indicates that the existing pollution control system operating at the foundry discharges approximately 644,300 cubic feet of air per minute from the building. The building encompasses approximately 11,487,000 cubic feet. Therefore, the operating system results in an air exchange of 3.36 changes per hour. On November 7, 2012, EPA and MPCA staff conducted a site visit which included the Grede Foundries building and found the air exchange system operating.

Groundwater monitoring has continued regularly at OU 1. The most recent data indicate that only tetrachloroethylene (PCE) currently exceeds drinking water standards in shallow groundwater, although in the recent past, trichloroethylene (TCE) has also exceeded drinking water standards. The levels of all volatile contaminants in shallow groundwater are below screening levels for vapor intrusion. For example, PCE is present at Monitoring Well EM-8S (near the 2008 soil gas sampling locations) at a level of 25 micrograms per liter (ug/l), which is significantly lower than the MPCA groundwater vapor intrusion screening level (GW_{ISV}) of 60 ug/l. EPA's risk assessor has also confirmed that TCE and PCE concentrations in groundwater are below Region 5's vapor intrusion screening levels.

Also, additional review of the 2008 soil gas data indicates that, although it did exceed EPA and MPCA's soil gas screening value for vapor intrusion, concentrations generally declined at shallower depths. Review by an EPA Region 5 risk assessor indicates that if these prior data

were extrapolated to depths of concern, indoor air concentrations would be well below the State of Minnesota's time-weighted average (TWA) limits for air contaminants, which are protective for workers at the facility.

The Fourth Five-Year Review also indicated that residual soil contamination remained on-site at OU 1. Soil contamination was related to a former disposal pit and former paint booth. All accessible areas of contaminated soil were removed or treated. Higher levels of contamination were removed by excavation in 1999. Remaining contamination was treated by soil vapor extraction (SVE). The SVE system operated from 2000 through 2002, at which time it was shut down after the system reached asymptotic levels of contaminant withdrawal. Sampling in 2008 confirmed that soil gas in this area remains below permissible exposure limits. The remaining residual contamination noted in the Fourth Five-Year Review refers to the probability that low levels of contamination remain under the building and footings. MPCA has reviewed available data and concluded that this residual contamination is very unlikely to be a source of unacceptable vapor intrusion risk because of the very low vapor levels being produced during operation of the SVE system prior to shut-down, and the contaminant levels in groundwater decreasing two orders of magnitude since SVE system operation.

In addition, contaminant levels in monitoring well MW- 9S (near the former paint spray booth source area) have been well below the GW_{ISV} during the past four groundwater monitoring events. For example, recent PCE concentration in MW-9S (screened at a depth near the water table) have ranged from 16 ug/l to 5.6 ug/l and TCE concentrations have ranged from 9.9 ug/L to <1 ug/L. Both contaminants are well below the GW_{ISV} values of 60 ug/L for PCE and 20 ug/L for TCE. The MPCA Risk-Based Guidance for the Vapor Intrusion Pathway does not recommend conducting a Tier 2 or Tier 3 assessment with groundwater levels that are below the GW_{ISV} screening values.

Site-wide

Since the Five-Year Review in 2010, the City of Waite Park well field has continued pumping and treats extracted groundwater to meet drinking water standards prior to distribution. Groundwater monitoring conducted by a responsible party demonstrates that the remaining contaminant plume is being captured by the city wells and is not discharging to the Sauk River.

Issues and Recommendations

The Fourth Five-Year Review identified three issues and recommendations concerning OU 1. These are listed and discussed below:

> Issue #1: There are no measures in place to monitor the effectiveness of existing ICs including restrictive covenants and long-term stewardship of the properties.
>
> Recommendation #1: Develop and implement an IC plan.

This issue and recommendation should be revised. The Fourth Five-Year Review established a milestone date of December 2011 for development and implementation of an IC Plan by

responsible parties. This has not occurred. In the interim, MPCA and EPA have confirmed through site inspections that current industrial/commercial zoning requirements appear to be met. In addition, groundwater at the Site is part of the City of Waite Park's Drinking Water Source Management Area, and any wells are subject to required isolation distances established in Minnesota Rules Chapter 4725. At present, these ICs appear to be effective; however, the Fourth Five-Year Review identified additional ICs that are needed to ensure long-term protectiveness. Issue #1 should be revised to include the issue of incomplete implementation of ICs. Recommendation #1 should be revised to recommend that PRPs develop and implement an IC work plan that ensures that effective ICs are in place and includes long-term stewardship of ICs.

> Issue #2: Residual soil contamination remains on the Electric Machinery (OU 1) site.
>
> Recommendation #2: Determine and implement a protective, long-term response action for site contaminated soils including consideration of required ICs.

Recommendation #2 should be revised to recommend that the IC work plan for OU 1 specifically include consideration of whether ICs are needed to address residual soil contamination which may remain beneath the building. Further analysis of existing data has demonstrated that an additional long-term, engineered response action for soil is not needed.

> Issue #3: Results of the vapor intrusion investigation indicated that further work needs to be completed for the vapor intrusion pathway including a building survey and air quality survey.
>
> Recommendation #3: Complete an MPCA Tier 3 vapor intrusion investigation.

Recommendation #3 is no longer needed. The existing air exchange system in operation at the occupied building at OU 1, the additional groundwater data collected in the past two years, and more detailed analysis of the 2008 soil gas data, together with the 2002 SVE data, indicate that the vapor intrusion pathway is unlikely to cause unacceptable risk at the Site.

Since the Fourth Five-Year Review, two additional issues have arisen regarding OU 1. Currently, groundwater pumping by the City of Waite Park for water supply purposes is expected to continue indefinitely. However, should the City choose to obtain their water supply by a different means in the future, there is not currently a contingency plan in place by which responsible parties would contain and treat the contaminant plume by alternate means. In addition, it is unclear whether current actions are sufficient to achieve cleanup goals in groundwater in a reasonable timeframe. Although contaminant concentrations in groundwater have significantly declined due to source control actions and prior groundwater treatment, more recently concentrations have stabilized and remain above drinking water standards. An evaluation is needed to determine whether additional treatment, potentially conducted in-situ, could speed up groundwater remediation and whether unremediated source materials (e.g., dense non-aqueous-phase liquids (DNAPL)) may be present at depth. These matters are summarized below in two new issues and recommendations.

Additional Issue #1: Lack of contingency plan for plume containment

Additional Recommendation #1: Develop a contingency plan to require the PRPs to contain and treat the groundwater plume in lieu of municipally provided treatment.

Additional Issue #2: Uncertainty regarding ability to reach groundwater cleanup goals

Additional Recommendation #2: Conduct additional investigation and feasibility study to determine whether additional remedial actions are necessary to achieve groundwater cleanup goals.

The following table summarizes the revised issues and recommendations for the Site:

Table 1 – Recommendations and Follow-Up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
(Site-wide) Implementation of ICs is incomplete and there are no measures in place to monitor the effectiveness of ICs including restrictive covenants and long-term stewardship of the properties	Develop and implement an IC work plan for each OU that ensures that effective ICs are in place, includes long-term stewardship of ICs and considers residual soil contamination which may remain beneath buildings	Responsible Parties	MPCA and EPA	Work plans by 05/27/13 Implemen-tation by 05/27/2015	N	Y
Lack of contingency plan for plume containment	Develop a contingency plan to require the PRPs to contain and treat the groundwater plume in lieu of municipally provided treatment	Responsible Party	MPCA and EPA	05/27/2015	N	Y

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Uncertainty regarding ability to reach groundwater cleanup goals	Conduct additional investigation and feasibility study to determine whether additional remedial actions are necessary to achieve groundwater cleanup goals	Responsible Party	MPCA and EPA	05/27/2015	N	Y

Protectiveness Statements

Based on new information and/or actions taken since the Five-Year Review completion date, the protectiveness statement for OU 1 and the Site-wide protectiveness statement are being revised as follows:

The remedy for OU 1 currently protects human health and the environment in the short term because groundwater contaminant concentrations have declined below levels of concern for vapor intrusion and the contaminants are being captured and treated by the municipal water supply treatment system, use of groundwater is controlled by State statute and City management plans, and the former Electric Machinery building is being operated with an effective air-exchange system. However, in order for the remedy to be protective in the long-term, the following actions need to be taken (as originally identified in the Fourth Five-Year Review and revised by this Five-Year Review Addendum):

- develop and implement an IC work plan that ensures that effective ICs are in place, includes long-term stewardship of ICs and considers residual soil contamination which may remain beneath the building;
- develop a contingency plan to require the PRPs to contain and treat the groundwater plume in lieu of municipally provided treatment;
- and conduct an investigation and feasibility study to determine whether additional remedial actions are necessary to achieve groundwater cleanup goals.

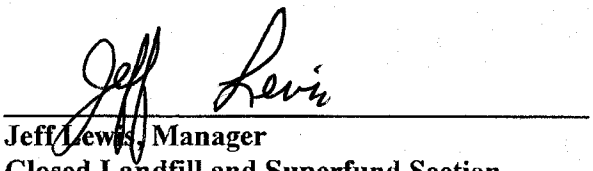
Long-term protectiveness also requires compliance with effective ICs. Compliance with effective ICs will be ensured through long-term stewardship by implementing, maintaining and monitoring the ICs as well as maintaining the Site remedy components.

Because the remedial actions at all OUs are protective in the short term, the Site is protective of human health and the environment in the short term. Long-term protectiveness for the Site will be achieved when the remaining ICs have been implemented, long-term stewardship plans for ICs are in place and groundwater cleanup goals are met.

Next Five-Year Review

The next Five-Year Review will be completed on May 27, 2015, five years after the signature of the last Five-Year Review report.

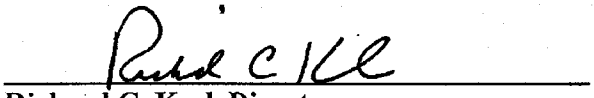
Approved by: **Date:**



12/5/12

Jeff Lewis, Manager
Closed Landfill and Superfund Section
Minnesota Pollution Control Agency

Approved by: **Date:**



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Richard C. Karl, Director
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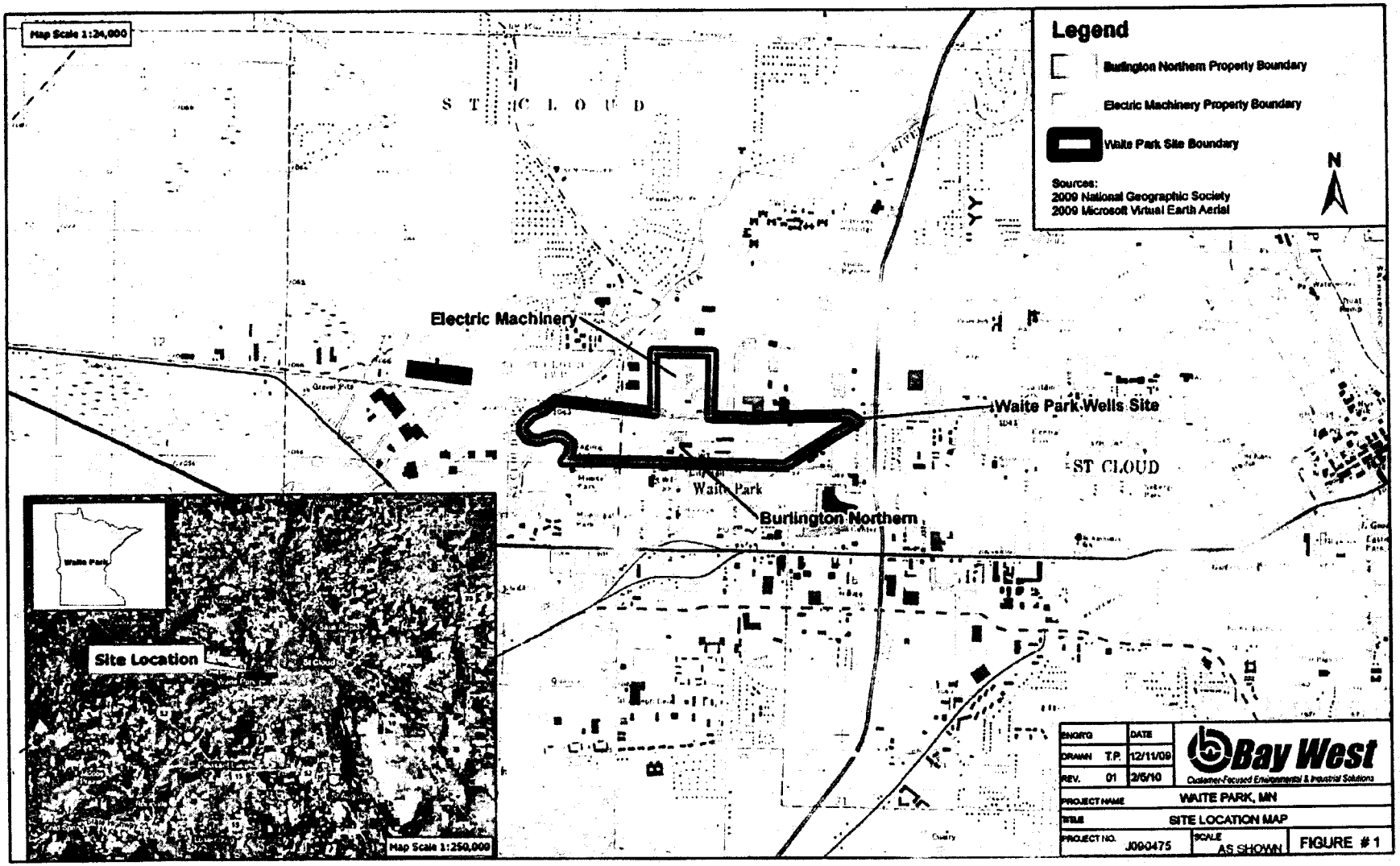

Figure 1. Location of Waite Park Wells NPL Site

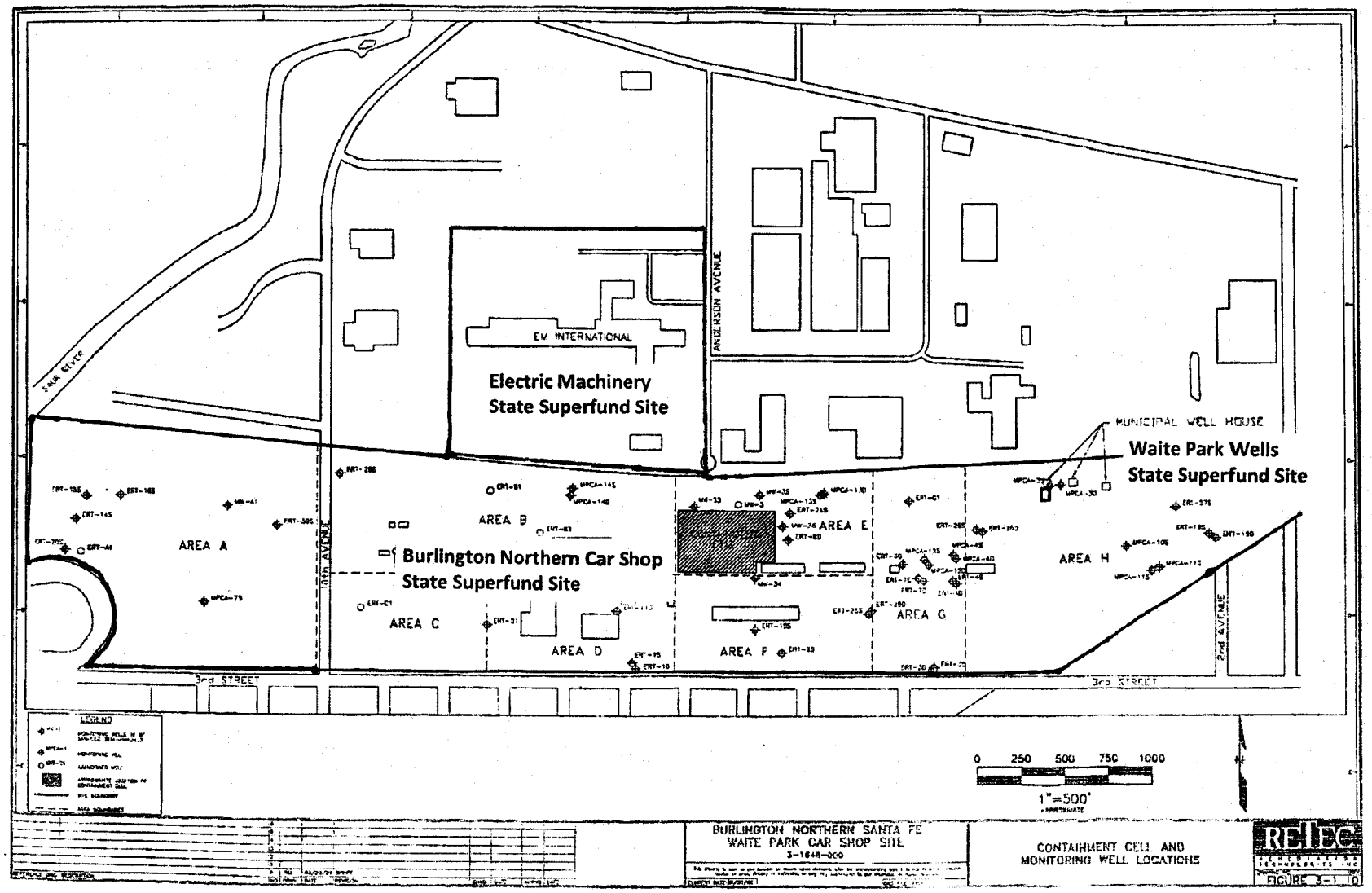

Figure 2. Location of State Superfund Sites